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EXAMINER	
WHITEMAN, BRIAN A	
ART UNIT	PAPER NUMBER
1635	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/475,704	BARNETT ET AL.	
	Examiner	Art Unit	
	Brian Whiteman	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/4/04 and 2/22/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4-10,24-43,49-60,63-66 and 68-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *69,71 and 73* is/are allowed.

6)☒ Claim(s) *2,4,5,7-10,24-43,49-60,63-66,68,70,72 and 74* is/are rejected.

7)☒ Claim(s) *6 and 75* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *10/5/04* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Non-Final Rejection

Claims 2, 4-10, 24-43, 49-60, 63-66, and 68-75 are pending.

Applicants' traversal, the amendment to the specification, the amendment to claims 2, 4-9, 24, 26, 27, 41, and 74-75, and the cancellation of claims 1, 3, and 67 in paper filed on 11/4/04 and 2/22/05 is acknowledged and considered.

NOTE: applicants state on page 10 of applicants' response filed on 11/4/04 and 2/22/05 that claims 2, 4-10, 24-40, 42-43, 49-60, and 63-66 and 68-75 are pending. However, applicants did not list claim 41 as pending. Absence evidence to the contrary, the status of claim 41 is pending.

Priority

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, as stated in the prior office action mailed on 9/14/01, the provisional application

60/114,495 upon which priority is claimed fails to provide adequate written support under 35 U.S.C. 112 for claims 2, 4-10, 24-43, 49-60, 63-66, and 68-75 of this application.

SEQ ID NO: 3 and 4 in Instant claims 2, 4-10, 24-43, 49-60, 63-66, 68-75 lack written support under 35 USC 112 first paragraph in provisional application '495.

Applicants did not address this issue in their response filed on 4/29/02 to the office action mailed on 9/14/01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
> (f) he did not himself invent the subject matter sought to be patented.

Claims 2, 4, 7, 24, 25, 27, 28, and 41-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Tartaglia et al. (US 5,990,091).

The sequence taught by Tartaglia anticipates a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches that recombinant vCP1433 and vCP1452 has an insert that encodes a polypeptide sequence that has 81.4% identity to SEQ ID NO: 3 and 78.8% to SEQ ID

NO: 4 of the instant application (see Figures 6 and 7). Tartaglia further teaches the limitation in instant claim 7 (see Figures 6 and 7). Tartaglia teaches the limitation in instant claim 25 (columns 28-29). Tartaglia teaches the limitation in instant claims 27 and 28 (column 36). Tartaglia teaches the limitation in instant claim 40 (column 36). Tartaglia teaches the limitation in instant claims 41-43 (column 23 and Figures 6 and 7).

Determining 70% identity at the amino acid level from 90% at the polynucleotide level was based on the following: substituting 100 nucleotides of a 1,000 base pair polynucleotide sequence is a sequence with 90% identity to the 1,000 base pair polynucleotide sequence. The polypeptide sequence encoded by the polynucleotide sequence with 90% identity would have a polypeptide with 333 amino acids. Substitute one polynucleotide in 100 codons of the polynucleotide with 90% identity could give a polypeptide with 30% substitution and polypeptide having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3.

Applicant's arguments with respect to claims 2, 7, 24, 25, 27, 28, 41, and 42 have been considered but are moot in view of the new ground(s) of rejection.

Claims 2, 4, 5, 24, 25, 41, 42, 68, and 74 remain rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The claims from the instant application are directed to an expression cassette comprising a polynucleotide sequence operably linked to a promoter, wherein the polynucleotide sequence encodes an HIV Gag polypeptide with 90% sequence identity to the sequence encoding an HIV

Gag polypeptide set forth in a particular SEQ ID NO: 3 and 4 and expression cassettes comprising control elements as set forth in instant claim 25.

Claim 72 from co-pending application 09/967,464 recites a microparticle comprises a vector comprising a heterologous nucleic acid sequence that encodes an HIV Gag polypeptide having a sequence having at least 90% identity to nucleotides 844-903 of SEQ ID NO: 63 (100% identity with SEQ ID NO: 3 of the instant invention), nucleotides 82-1512 of SEQ ID NO: 68 (and 99% identity to SEQ ID NO: 4 of the instant invention). Although the claim does not specifically recite a promoter operably linked to the heterologous nucleic acid, the promoter would be required in the vector to express the heterologous nucleic acid because a promoter is required for the heterologous nucleic acid to be expressed in a cell. Claim 39 from '464 (which claim 72 depends from) recites an antigen selected from gag polypeptide.

Applicant's arguments filed 2/22/05 have been fully considered but they are not persuasive.

With respect to applicants' argument that application '464 is a later filed application and cannot be used as a reference, the argument is moot because 102(f) does not require an inquiry into the relative dates of a reference and the application. See MPEP 2137.

With respect to applicants' argument that application '464 has additional claims that are not presently pending in the instant case, and hence, additional inventors are present on this later filed application, the argument is moot because application '464 contains claims that anticipate the instant claims and as pointed out by applicants there are additional inventors present in application '464 that are not listed for the instant application. The 102(f) is applied to determine

whether or not the additional inventors in application '464 also invented subject matter in the instant claims rejected under 102(f). MPEP 2137 recites:

> It is incumbent upon the inventors named in the application, in reply to an inquiry regarding the appropriate inventorship under subsection (f), or to rebut a rejection under 35 U.S.C. 102(a) or (e), to provide a satisfactory showing by way of affidavit under 37 CFR 1.132 that the inventorship of the application is correct in that the reference discloses subject matter invented by the applicant rather than derived from the author or patentee notwithstanding the authorship of the article or the inventorship of the patent.

Claims 2, 4, 5, 24, 25, 41, 42, 68, and 74 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter.

The claims from the instant application are directed to an expression cassette comprising a polynucleotide sequence operably linked to a promoter, wherein the polynucleotide sequence encodes an HIV Gag polypeptide with 90% sequence identity to the sequence encoding an HIV Gag polypeptide set forth in a particular SEQ ID NO: 3 and 4 and expression cassettes comprising control elements as set forth in instant claim 25.

The claims from US publication '453 (claims 26, 28, 31-34, 37-41, 45-50, and 72) claim a microparticle comprises a vector comprising a heterologous nucleic acid sequence that encodes an HIV Gag polypeptide. More specifically, claim 72 specifically recites a microparticle comprising a vector comprising a nucleic acid sequence having a sequence having at least 90% identity to nucleotides 844-903 of SEQ ID NO: 63 (100% identity with SEQ ID NO: 3 of the instant invention), nucleotides 82-1512 of SEQ ID NO: 68 (and 99% identity to SEQ ID NO: 4

of the instant invention). However, the claims from '453 do not specifically recite an expression construct comprising a promoter operably linked to the nucleic acid sequence as recited in instant claims 24 and 25. However, a promoter is required to express the nucleic acid sequence in a cell. Claim 39 from '453 specifically recites the limitation in instant claim 42. Claim 37 recites the limitation in instant claim 43.

Applicant's arguments filed 2/22/05 have been fully considered but they are not persuasive for the reasons set forth above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 4, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Rovinski et al. (BE-1).

The sequence taught by Tartaglia reads on a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches that recombinant vCP1433 and vCP1452 has an insert that encodes a polypeptide sequence that has 81.4% identity to SEQ ID NO: 3 and 78.8% to SEQ ID NO: 4 of the instant application (see Figures 6 and 7). However, Tartaglia does not specifically teach the limitation in instant claims 8 and 9.

However, at the time the invention was made, Rovinski teaches producing a non-infectious HIV particle comprising Env gene product, Gag gene product, Pol gene product and one antigenic marker (column 2). Rovinski teaches modifying the HIV gene product by deleting the coding regions encoding reverse transcriptase and integrase (column 6 and Figure 8).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Rovinski, namely to produce a plasmid comprising a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application further including a

polynucleotide encoding a modified HIV polymerase gene product. One of ordinary skill in the art would have been motivated to combine the teachings to produce the plasmid because Rovinski teaches producing the plasmid to avoid producing and using infectious HIV particles in studies thus avoiding the risk of exposing someone to infectious HIV particles.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Rovinski et al. (BE-1) as applied to claims 2, 4, 8, and 9 above, and further in view of Rubinstein et al. (US 6,139,843) and Johnson et al. (The Journal of Immunology, 147:1512-1521, 1991).

However, Tartaglia et al. taken with Rovinski et al. do not specifically the plasmid further comprising a polynucleotide encoding a polypeptide comprising T-helper cell and CTL epitopes.

However, at the time the invention was made, one of ordinary skill in the art would know that HIV polypeptides contain several T-helper cell epitopes as exemplified by Rubinstein and CTL epitopes as exemplified by Rubenstein and Johnson. Johnson teaches that HIV gag contains CTL epitopes (page 1512). Rubenstein teaches that HIV contains several T-cell and CTL epitopes (column 9).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Rovinski in further view of Rubenstein and Johnson, namely to produce a plasmid further including a polynucleotide encoding a polypeptide comprising T-helper cell and CTL epitopes. One of ordinary skill in the

art would have been motivated to combine the teachings to produce the plasmid comprising a polynucleotide encoding the HIV gag polypeptide, wherein the HIV gag polypeptide maintains CTL and T-helper cell epitopes because the epitopes can induce T-cell and CTL response to the HIV polypeptide as exemplified by Rubenstein (column 9).

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Corbin et al. (US 6,489,542).

Tartaglia teaches a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches that recombinant vCP1433 and vCP1452 has an insert that encodes a polypeptide sequence that has 81.4% identity to SEQ ID NO: 3 of the instant application (see Figures 6 and 7). Tartaglia teaches a mammalian cell comprising either plasmid (column 36). However, Tartaglia does not specifically teach the plasmid comprising other control elements selected from instant claims 25.

However, at the time the invention was made, the control elements in instant claim 25 were readily available to one of ordinary skill in the art for producing a plasmid as exemplified by Corbin (columns 22-26, 51-53, and 109-110).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Corbin, namely to produce a plasmid with the control elements set forth in instant claim 25 comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings, as a matter of designer's choice, because the control elements were readily available to one ordinary skill in the art for use in expressing a nucleotide sequence from a plasmid in a cell. In addition, the instant specification does not teach any unexpected results when using the control elements selected in instant claim 25.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Corbin et al. (US 6,489,542) as applied to claims 2 and 24-25 above, and further in view of either Sikic et al. (US 5,830,697) or Dubensky et al. (US 6,391,632).

However, Tartaglia taken with Corbin do not specifically teach the plasmid comprising the promoters set forth in instant claim 26.

However, at the time the invention was made, the promoters recited in instant claim 26 were readily available to one of ordinary skill in the art as taught by Dubensky. The promoters selected from MMLV-LTR and HIV-LTR (Sikic et al., column 4) and CMV, CMV-intron A, SV40, RSV, MMLV-LTR, and metallothionein (Dubensky et al., columns 22, 26, and 87-88).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia and Corbin taken with either Sikic or Dubensky, namely to produce a plasmid with the control elements set forth in instant claims 26. One of ordinary skill in the art would have been motivated to combine the teachings, as a matter of designer's choice, because the promoters were readily available to one ordinary skill in the art for expressing a nucleic acid in a cell. In addition, the instant specification does not teach any unexpected results when using the control elements selected in instant claim 26 in the instant invention.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 27-32 and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with ATCC catalog of cell lines and hybridomas (7^{th} edition, Maryland, 1992, pages 70, 79, 148, 150, 158, 164, 194, 299, 308, and 456).

Tartaglia teaches a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches recombinant vCP1433 and vCP1452. Tartaglia teaches a mammalian cell comprising the plasmid (column 36). However, Tartaglia does not specifically teach using all of the mammalian cells recited in instant claims 29-32 and 35-40.

However, at the time the invention was made, the cell lines in instant claims 27-32 and 35-40 were readily available to one of ordinary skill in the art as exemplified by ATCC catalog (pages 70, 79, 148, 150, 158, 164, 194, 299, 308, 456) for making a cell comprising a plasmid. In addition, the instant specification further supports that the several of the cell lines recited in the instant claims were readily available at the time the invention was made from ATCC (pages 30-31).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with the ATCC catalog, namely to produce the cell lines in instant claims 27-32 and 35-40 comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings, as a matter of designer's choice, to insert the plasmid taught by Tartaglia in any cell set forth in instant claims 27-32 and 35-40 because the cell lines were readily available to one ordinary skill in the art. In addition, the instant specification does not teach any unexpected results when using a cell selected from instant claims 27-32 and 35-40 in the instant invention.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 27, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Helting et al. (US 5,470,720).

Tartaglia teaches a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence

identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches recombinant vCP1433 and vCP1452. Tartaglia teaches a mammalian cell comprising the plasmid (column 36). However, Tartaglia does not specifically teach using a cell recited in instant claim 33.

However, at the time the invention was made, the cell line in instant claim 33 was readily available to one of ordinary skill in the art for expressing an HIV polypeptide as exemplified by Helting et al. (column 10).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Helting et al., namely to produce the cell line in instant claim 33 comprising the polynucleotide taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings, as a matter of designer's choice, to insert a plasmid suitable for the cell set forth in instant claim 33 because the cell line and method of producing the cell line were readily available to one of ordinary skill in the art. In addition, the instant specification does not teach any unexpected results when using a cell selected in instant claim 33 in the instant invention.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 27, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Adams et al. (IJ-1).

Tartaglia teaches a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims

encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches recombinant vCP1433 and vCP1452. Tartaglia teaches a mammalian cell comprising the plasmid (column 36). However, Tartaglia does not specifically teach using the cell line recited in instant claim 34.

However, at the time the invention was made, the cell line in instant claim 34 was readily available to one of ordinary skill in the art for expressing an HIV polypeptide as exemplified by Adams et al. (pages 68-70).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Adams et al., namely to produce the cell lines in instant claim 34 comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings, as a matter of designer's choice, to insert and/or use a plasmid suitable for the particular type of cell set forth in instant claim 34 because the cell line and method of producing the cell line were readily available to one of ordinary skill in the art. In addition, the instant specification does not teach any unexpected results when making and using a cell selected in instant claim 34 in the instant invention.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, 41, 49, 50, 51, 52, 54, 58, 59, 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Tobin et al. (BW-1).

Tartaglia teaches a nucleotide sequence having at least 90% sequence identity to the sequence presented in SEQ ID NO: 3 and 4 of the instant application because the claims encompass a nucleotide sequence encoding an amino acid sequence having 70% sequence identity to the amino acid sequence encoded by SEQ ID NO: 3 and 4 of the instant application. Tartaglia teaches recombinant vCP1433 and vCP1452. Tartaglia teaches a mammalian cell comprising the plasmid and expressing the polypeptide encoded by the polynucleotide in cells in vitro (column 36). However, Tartaglia does not specifically teach using the plasmid to generate an immune response in a subject.

However, at the time the invention was made, generating an immune response in a mammal (e.g., human) comprising introducing a nucleic acid encoding an HIV Gag polypeptide into the mammal was well known to one of ordinary skill in the art as exemplified by Tobin et al. (columns 4, 12, 17, and 40-41). In addition, Tobin teaches using a viral vector (e.g., retroviral vector) or liposome to deliver the nucleic acid to a cell in vivo (columns 3-5, 11, 17-20, and 21-24).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al., namely to generate an immune response in a human comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings to generate an immune response in a human using the plasmid taught by Tartaglia to study the immune response to HIV gag in the human as exemplified by Tobin (columns 12, 17, and 20).

In addition, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al.,

namely to generate an immune response in a mammal comprising a liposome comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings to generate an immune response in a mammal using a liposome because liposomes are well know to one of ordinary skill in the art for delivering a nucleic acid to a cell in vivo as exemplified by Tobin (columns 19 and 22).

In addition, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al., namely to generate an immune response in a mammal comprising administering a retroviral vector comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated to combine the teachings to generate an immune response in a mammal using a retroviral vector because retroviral vectors are well known for one of ordinary skill in the art for delivering a nucleic acid to a cell in vivo as exemplified by Tobin (columns 11-12, 17-19 and 21-24).

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, 41, 49, 50, and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Tobin et al. (BW-1) as applied to claims 2, 4, 41, 49, 50, 51, 52, 54, 58, and 59 above, and further in view of Marrow (US 5,622,705).

However, Tartaglia and Tobin do not specifically teach using a Sinbis virus to deliver the plasmid to the mammal.

However, at the time the invention was made, Marrow teaches that one of ordinary skill in the art could generate an immune response using Sinbis virus comprising a nucleic acid (columns 9 and 10).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al. in further view of Marrow, namely to generate an immune response in a mammal comprising administering a Sinbis-virus derived vector comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated, as a matter of designer's choice, to combine the teachings to generate an immune response in a mammal using the Sinbis-virus to study the immune response to HIV gag in the mammal.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, 41, 49, 50, 52, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Tobin et al. (BW-1) as applied to claims 2, 4, 41, 49, 50, 51, 52, 54, 58, and 59 above, and further in view of Kafri et al. (Nat. Genet. 1997, 17:abstract).

However, Tartaglia and Tobin do not specifically teach using a lentiviral vector to deliver the plasmid to the mammal.

However, at the time the invention was made, Kafri et al. teach that one of ordinary skill in the art could use a lentiviral vector to express a nucleic acid in vivo (abstract).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al. in further view Kafri, namely to generate an immune response in a mammal comprising administering a lentiviral vector comprising the plasmid taught by Tartaglia. One of ordinary skill in the art would have been motivated, as a matter of designer's choice, to combine the teachings to generate an immune response in a mammal using the lentiviral vector to study the immune response to HIV gag in the mammal.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, 41, 49, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Tobin et al. (BW-1) as applied to claims 2, 4, 41, 49, 50, 51, 52, 54, 58, and 59 above, and further in view of Lai et al (DNA and Cell Biology, 14, 1995, 643-651).

However, Tartaglia and Tobin do not specifically teach using a gene gun to deliver a particulate carrier comprising gold or tungsten coating the plasmid to the mammal.

However, at the time the invention was made, Lai teaches that DNA coated onto heavy tungsten or gold particles can be delivered to an animal using a gene gun (page 643). Lai teaches that using the gene gun saves times, money, and labor (page 643).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al. in further view Lai, namely to generate an immune response in a mammal comprising gene gun delivery to

a mammal a plasmid coated onto heavy tungsten or gold. One of ordinary skill in the art would have been motivated, as a matter of designer's choice, to combine the teachings to generate an immune response in a mammal using the gene to study the immune response to HIV gag in the mammal and because the gene gun method saves time, money and labor as taught by Lai (page 643).

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Claims 2, 4, 41, 49, and 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tartaglia et al. (US 5,990,091) taken with Tobin et al. (BW-1) as applied to claims 2, 4, 41, 49, 50, 51, 52, 54, 58, and 59 above, and further in view of Moore et al. (Vaccine 13:1741-1749, 1995).

However, Tartaglia and Tobin do not specifically teach the method further comprising administering an HIV polypeptide before, concurrently, or after introducing the plasmid.

However, at the time the invention was made, Moore teaches that a recombinant HIV entrapped in microparticles induced an immune response in a mammal (page 1741).

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al. in further view Moore, namely to generate an immune response in a mammal comprising the plasmid taught by Tartaglia and an HIV polypeptide. One of ordinary skill in the art would have been motivated, as a matter of designer's choice, to combine the teachings to use an HIV polypeptide

in the method of generating an immune response in a mammal to enhance the immune response to the HIV polypeptide expressed from the plasmid.

In addition, it would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Tartaglia taken with Tobin et al. in further view Moore, namely to generate an immune response in a mammal comprising the plasmid taught by Tartaglia and an HIV polypeptide, wherein the HIV polypeptide was administered before, concurrently, or after introducing the plasmid. One of ordinary skill in the art would have been motivated, as a matter of designer's choice, to combine the teachings to administer an HIV polypeptide at any time point in the method of generating an immune response in a mammal comprising administering a plasmid taught by Tartaglia because the instant specification does not teach any unexpected result(s) of administering the polypeptide before, concurrently, or after administering the expression cassette.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2, 4, 5, 24, 25, 41-43, 68, and 74 remain provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464.

The claims from the instant application are directed to an expression cassette comprising a nucleotide sequence encoding a Gag polypeptide, wherein the nucleotide sequence encoding said Gag polypeptide comprises a nucleotide sequence having at least 90% sequence identity to claimed SEQ ID NOs: 3 and 4.

The claims from copending application '464 (claims 26, 28, 31-34, 37-41, 45-50, and 72) claim a microparticle comprises a vector comprising a heterologous nucleic acid sequence that encodes an HIV Gag polypeptide. More specifically, claim 72 specifically recites a microparticle comprising a vector comprising a nucleic acid sequence having a sequence having at least 90% identity to nucleotides 844-903 of SEQ ID NO: 63 (100% identity with SEQ ID NO: 3 of the instant invention), nucleotides 82-1512 of SEQ ID NO: 68 (and 99% identity to SEQ ID NO: 4 of the instant invention). However, the claims from '464 do not specifically recite an expression construct comprising a promoter operably linked to the nucleic acid sequence as recited in instant claims 24 and 25. However, one of ordinary skill in the art would understand that a promoter is required to express the nucleic acid sequence in a cell. Thus, it would have been obvious to one of ordinary skill in the art to operably linked a promoter to the nucleic acid sequence. Claim 39 from '464 specifically recites the limitation in instant claim 42.

Claim 37 recites the limitation in instant claim 43. Thus, the instant claims and the claims from '464 are obvious variants of one another.

This is a provisional obviousness-type double patenting rejection.

Applicant's arguments filed 2/22/05 have been fully considered but they are not persuasive. Applicants argue that application '464 is later filed and therefore is not available as a reference.

Applicants' argument is not found persuasive because the filing date of another application that has claims that read on the claims in an application being examined is not considered one of the reasons for determining whether or not a provisional double patenting rejection is required. See MPEP 804.

Claims 2, 4, 5, 24, 25, 41-43, 68, and 74 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453.

The claims from the instant application are directed to an expression cassette comprising a nucleotide sequence encoding a Gag polypeptide, wherein the nucleotide sequence encoding said Gag polypeptide comprises a nucleotide sequence having at least 90% sequence identity to claimed SEQ ID NOs: 3 and 4.

The claims from US publication '453 (claims 26, 28, 31-34, 37-41, 45-50, and 72) claim a microparticle comprises a vector comprising a heterologous nucleic acid sequence that encodes an HIV Gag polypeptide. More specifically, claim 72 specifically recites a microparticle comprising a vector comprising a nucleic acid sequence having a sequence having at least 90%

identity to nucleotides 844-903 of SEQ ID NO: 63 (100% identity with SEQ ID NO: 3 of the instant invention), nucleotides 82-1512 of SEQ ID NO: 68 (and 99% identity to SEQ ID NO: 4 of the instant invention). However, the claims from '453 do not specifically recite an expression construct comprising a promoter operably linked to the nucleic acid sequence as recited in instant claims 24 and 25. However, one of ordinary skill in the art would understand that a promoter is required to express the nucleic acid sequence in a cell. Thus, it would have been obvious to one of ordinary skill in the art to operably linked a promoter to the nucleic acid sequence. Claim 39 from '453 specifically recites the limitation in instant claim 42. Claim 37 recites the limitation in instant claim 43. Thus, the instant claims and the claims from '453 are obvious variants of one another.

This is a provisional obviousness-type double patenting rejection.

Claims 2 and 24-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 or claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453 in view of Tartaglia et al. (US 5,990,091) and Corbin et al. (US 6,489,542).

The claims from either '464 or '453 do not specifically recite an expression cassette comprising control elements as recited in instant claims 24 and 25.

However, Tartaglia et al. teach making and using a plasmid comprising a polynucleotide encoding HIV polypeptide. Tartaglia does not specifically teach the control elements in instant claim 25. However, Corbin teaches that the control elements recited in instant claim 25 were

readily available to one of ordinary skill in the art for making a plasmid comprising the control elements. Thus, it would have been obvious to one of ordinary skill in the art to make and use a plasmid comprising the control elements recited in instant claim 25 for expressing the polynucleotide in a cell. Thus, the instant claims 2, 24 and 25 are obvious variants of the claims from either '464 or '453 in view of Tartaglia et al. and Corbin et al.

This is a provisional obviousness-type double patenting rejection.

Claims 2 and 24-26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 or claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453 in view of Tartaglia et al. (US 5,990,091) and Corbin et al. (US 6,489,542) either Sikic et al. (US 5,830,697) or Dubensky et al. (US 6,391,632).

The claims from either '464 or '453 and Tartaglia and Corbin do not specifically recite an expression cassette comprising control elements as recited in instant claim 26.

However, the promoters recited in instant claim 26 were readily available to one of ordinary skill in the art for making a plasmid comprising the promoters as exemplified by Sikic et al., column 4 and Dubensky et al., columns 22, 26, and 87-88. Thus, it would have been obvious to one of ordinary skill in the art to make and use a plasmid comprising the promoters recited in instant claim 26 for expressing the polynucleotide in a cell. Thus, the instant claims 2 and 24-26 are obvious variants of the claims from either '464 or '453 in view of Tartaglia et al. and Corbin et al. and either Sikic et al. or Dubensky et al.

This is a provisional obviousness-type double patenting rejection.

Claims 2 and 27-40 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 or claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453 in view of ATCC catalog of cell lines and hybridomas (7th edition, Maryland, 1992, pages 70, 79, 148, 150, 158, 164, 194, 299, 308, and 456); Helting et al. (US 5,470,720); and Adams et al. (IJ-1).

The claims from either '464 or '453 do not specifically recite a cell comprising the expression cassette as recited in instant claims 27-40.

However, the cell lines recited in instant claims 27-40 were readily available to one of ordinary skill in the art as taught in the instant specification (pages 30-31) and the prior art as exemplified by ATCC catalog of cell lines and hybridomas, Helting et al. and Adams et al. for producing a cell line selected from instant claims 27-40. Thus, it would have been obvious to one of ordinary skill in the art to make and use a cell comprising a plasmid comprising the promoters recited in instant claims 27-40 for expressing the polynucleotide in a cell in vitro. Thus, the instant claims 2 and 27-40 are obvious variants of the claims from either '464 or '453 in view of ATCC catalog of cell lines and hybridomas, Helting et al. and Adams et al.

This is a provisional obviousness-type double patenting rejection.

Claims 68 and 70 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either claims 26, 28, 31-50, and 72

of copending Application No. 09/967,464 or claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453 in view of Rovinski et al (BS-1).

The claims from either '464 or '453 do not specifically recite the expression cassette further comprising a nucleotide sequence encoding an HIV protease polypeptide.

However, Rovinski teaches recombinant nucleic acid encoding HIV gag and HIV protease and using the nucleic acid to produce a non-infectious retrovirus. Thus, it would have been obvious to one of ordinary skill in the art to make and use a vector comprising a nucleic acid encoding an HIV gag (SEQ ID NO: 3) and a nucleic acid encoding an HIV protease to produce a retrovirus as taught by Rovinski. Thus, the instant claims 68 and 70 are obvious variants of the claims from either '464 or '453 in view of Rovinski.

This is a provisional obviousness-type double patenting rejection.

Claims 68 and 72 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over either claims 26, 28, 31-50, and 72 of copending Application No. 09/967,464 or claims 26, 28, 31-50, and 72 of US pre-grant publication 2003/0138453 in view of Rovinski et al. (BE-1).

The claims from either '464 or '453 do not specifically recite the expression cassette further comprising a nucleotide sequence encoding an HIV polymerase polypeptide.

However, Rovinski teaches recombinant nucleic acid encoding HIV gag and HIV polymerase. Rovinski teaches producing a non-infectious HIV particle comprising Env gene product, Gag gene product, Pol gene product and one antigenic marker (column 2). Thus, it would have been obvious to one of ordinary skill in the art to make and use a vector comprising

a nucleic acid encoding an HIV gag (SEQ ID NO: 3) and a nucleic acid encoding an HIV polymerase to produce HIV particles. Thus, the instant claims 68 and 72 are obvious variants of the claims from either '464 or '453 in view of Rovinski.

This is a provisional obviousness-type double patenting rejection.

Claims 2, 4, 5, 24-26, 41-43, 68, and 74 are directed to an invention not patentably distinct from claims of commonly assigned copending application 09/967,464 and pre-grant US publication 2003/0138453. Specifically, for the reasons set forth under the provisional double patenting rejection.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned us application, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C. 103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly

assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Applicant's arguments filed 2/22/05 have been fully considered but they are not persuasive because the argument was already addressed in the examiner's response to the provisional double patenting rejection.

Response to Arguments

Applicant's arguments, see pages 12-14, filed 2/22/05, with respect to 112 first paragraph written description have been fully considered and are persuasive. The rejection of claims 1-4, 7-10, 24-43, 49-60, and 63-66 has been withdrawn because the instant polynucleotide sequences recite a structure and function and the function can tolerate many modifications as stated in the Declaration by Dr. Ulmer's filed on 1/23/04.

Applicant's arguments, see pages 11-14, filed 2/22/05, with respect to 112 first paragraph enablement have been fully considered and are persuasive. The rejection of claims 1-4, 7-10, 24-43, 49-60, and 63-66 has been withdrawn because several polynucleotide sequences comprising a nucleotide sequence encoding an HIV Gag polypeptide were well known in the art at the time the invention was made (See US 6,602,705 and prior art rejections of record) and the skilled artisan can make a sufficient number of species to represent the genus of polynucleotide sequence (See Delcarations of Record (1/23/04 and 11/22/02)).

Applicant's arguments, see pages 14-15, filed 2/22/05, with respect to 102(f) and obviousness type double patenting over 09/899,575 have been fully considered and are not found

persuasive. However, the rejection of claims 6, 69, 71, 73, and 75 has been withdrawn because SEQ ID NO: 4 in '575 is directed to a non-elected invention.

Conclusion

The method claims in the instant application were not rejected in the obviousness double patenting rejection over US application 09/967,464 and US 2003/0138453 because of an election/restriction in the prosecution history of '464.

Claims 6, 69, 71, 73, and 75 are free of the prior art of record.

Claims 6 and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Whiteman whose telephone number is (571) 272-0764. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00 (Eastern Standard Time), with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, acting SPE – Art Unit 1635, can be reached at (571) 272-0811.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

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